

PROTEIN & NUTRITION

PROTEIN: Essential for good health

Protein, along with fat and carbohydrates, is one of three **macronutrients** in food that provides calories or "energy" for the body.

Protein plays a major role in growth and development and is:

- part of all skin, hair, nails, muscle, bone, internal organs and body fluids
- important for building and repairing body tissue
- vital for body processes, such as blood clotting, immune response, vision, and production of hormones and enzymes

Unlike fat and carbohydrates, the body does not store protein in its original form to access later, so it's crucial to have a continual source of it in our diet. Too little protein will result in a gradual breakdown of body tissues and loss of muscle, and affect almost every aspect of body function.



PROTEINS

Are large, complex molecules made up of **amino acids**. There are 20 different amino acid combinations that make up every type of protein in our bodies. **Essential amino acids (EAAs)** cannot be made by the body and must come from food. Of the 20 amino acids, nine are considered "essential."¹

IT'S EASY TO GET PROTEIN IN YOUR EVERYDAY DIET.

Protein is found in many plant and animal foods, including:



DAIRY PRODUCTS



EGGS



MEATS & POULTRY



PEAS, BEANS &
LENTILS (PULSES
AND LEGUMES)



NUTS & SEEDS



SEAFOOD (FISH &
SHELLFISH)



SOYBEAN PRODUCTS,
INCLUDING TOFU &
SOYMILK



VEGETABLES SUCH
AS BROCCOLI &
ASPARAGUS



WHOLE GRAINS,
INCLUDING QUINOA,
WHEAT, RICE & OATS

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COMPARING DIFFERENCES

Dietary proteins are categorized by whether or not they have all EAAs. **Complete** or **high-quality proteins** contain all EAAs in adequate amounts that your body requires. **Incomplete proteins** provide only some of the EAAs you need.



Complete proteins

Animal foods: dairy products, eggs, meats, poultry, seafood

Plant-based protein: soy



Incomplete proteins

Plant-based foods: peas, beans, lentils, nuts, seeds, vegetables, whole grains

WHICH PROTEIN SOURCE IS BETTER?

Both plant- and animal-based protein foods contain nutrients critical to good health.

Plant-based protein foods generally provide more fibre and less saturated fat than animal protein foods. However, animal-based foods are superior sources of protein, vitamin B12, vitamin D3, DHA omega3 fatty acids and heme iron, the type of iron most readily absorbed by your body.

Plant-based protein sources are less protein-dense per serving and calorie contribution. You need to eat a larger quantity of plant-based protein sources to obtain the same grams of protein as from animal-based proteins. For example:

28 g protein =

- 1 serving of beef (75 g – about the size of a deck of cards) @ 184 calories
- 2.5 servings of black beans (about 1 3/4 cups) @ 420 calories
- 3.5 servings of peanut butter (about 7 tbsp) @ 664 calories⁵



COMPLEMENTARY PROTEINS

Are two or more incomplete protein sources that, when eaten in combination (at the same meal or during the same day), compensate for each other's lack of amino acids. For example, grains are low in the amino acid lysine, while pulses, legumes and nuts are low in the amino acid methionine. When eaten together (e.g., rice and beans or peanut butter on whole wheat bread), they form a complete protein.²

HOW MUCH IS ENOUGH?

This depends on your body size, special needs and activity level. Most adults over 19 years of age require about 0.8 g of protein per kg of body weight.³

Children need more protein per kg of body weight than adults because they are growing and building new tissue. Pregnant and nursing women need more protein for growth of the baby and to produce milk. Athletes also require more protein in their diets.

According to *Canada's Food Guide*, 1/2 of your plate should be fruits and vegetables, 1/4 whole grain foods and 1/4 protein foods.⁴

